

50 feet, sloping inwards 11° , beds of sandstone in a sea-worn cave, proving at least one other disturbance in addition. Subsequent to these great disturbing changes, there occurred a series of elevations and depressions, indicated by mixed beaches and sea-bottoms at different levels and by the surface of the rock perforated by Lithodomi and sea-worn to the very summit, indicating that the amount of change of level in these comparatively modern times—for the fossils in these deposits are in every case identical with species now living in the neighbouring seas—exceeded the height of the mountain, or 1470 feet. There are evidences, also, of a series of movements of depression. All these changes must have preceded the historical period, as previous to the last change, Gibraltar must have been an island, of which there is no record; the most ancient accounts describing it as it is now. The upheaving forces must have been deep-seated, as there are no erupted igneous rocks near.

MISCELLANEOUS.

SUBMARINE EXPLORATIONS BY M. MILNE EDWARDS.

M. MILNE EDWARDS in a communication to the French Academy states, that having for some time been occupied in studying the lower marine animals, particularly Zoophytes, Mollusca, Vermes and Crustacea, in their living state, on the northern and eastern coasts of France, and being desirous of also entering upon a comparative study of species peculiar to warmer regions, he had visited with this view the shores of the Mediterranean, where their habitats not being rendered accessible as on the coasts of the Channel and the Atlantic by the alternations of the tide, he had availed himself of the apparatus invented by Colonel Paulin for a course of submarine exploration. He then describes the apparatus, which is a sort of helmet with glass eye-holes, and a flexible tube for a supply of air; and states, that by its aid, in Provence, Italy, Sicily and Algeria, he often explored the habitations of a multitude of these animals, remaining under water more than half an hour, and at a depth of more than seven mètres.

“Exploring by these means,” he adds, “the rocks and the bottom of the port of Milazzo, I procured an immense number of the eggs of mollusks and annelides whose development I wished to study. Besides, I was enabled to catch in the irregularities of the bottom the minutest animals that remain fixed, and cannot be obtained in any other manner. I saw perfectly all that surrounded me, and it was muscular fatigue alone that hindered me from walking at the bottom of the sea just as I could do on the shore.

“The questions to which I had especially directed my attention relate to the embryology of the Annelida and of the Mollusca, to the circulation of the blood in the latter animals, as also in the Crustacea, and to the organization of the *Stephanomia*, and of the Ciliograde Acalephæ in general; but whilst following out these investigations I had occasion to make various observations on subjects of secondary

interest: thus I have succeeded in tracing the mechanism of the singular motions discovered by M. Sieboldt in the interior of the auditory capsule of the Mollusca; I have convinced myself in the most positive manner of the existence of hermaphroditism in the *Anatifa*, a fact which had been rendered doubtful by the observations of Mr. Goodsir on the alleged males of the *Balani*. I have observed that in the *Haliotides* the sexes are separated as in the *Patellæ*, and that consequently it is at present less possible than ever in my opinion to admit as the basis of classification of the Gasteropod Mollusca, the distinction of these animals into monœcious, hermaphrodite, and diœcious. I have discovered a new fact which shows how little physiological importance should be attached to the colour of the blood, so constant in the Vertebrata, in the inferior animals, a conclusion which already resulted from my observations on the Vermes. I have found in fact, in the neighbourhood of Palermo, an *Ascidia* with red blood. I shall in conclusion notice another zoological fact which of itself is of no importance, but will furnish a further proof of the errors which might be committed by placing too much confidence in the invariability of the relations which appear to exist between the organization of the lower animals and their external characters. M. Savigny, in showing how much the internal structure of the compound *Ascidia* differs from those of the Halcyons and other polypes with which they had up to that time been confounded, pointed out the existence of six tentacula in the one and of eight in the others, as being the external character the most fit to distinguish them without the aid of the scalpel; and in truth never more than six tentacula had hitherto been found round the mouth of the compound *Ascidia*, while the Halcyons and other zoophytes constructed after the same type, always present eight; but this empirical character now loses its entire value, for I have found in the Mediterranean a compound *Ascidia* having eight of these appendages."

The author promises to give an account in a future communication of his observations on the development of the Annelida.

From the *Comptes Rendus* for Nov. 25, 1844.

OBSERVATIONS ON SOME POLYPES.

Dr. Reid has detailed several new observations he has made upon certain polypes when carefully examined by the microscope: he mentions some appendages to the polypidom in the *Cellularia scruposa* and *Cellularia reptans* which had not been previously described. At the anterior part of the outer side of each cell in the *Cellularia scruposa*, and immediately in front of the tooth-like process there attached, are two pretty long spines and a rounded process, which tapers slightly from its fixed to its free extremity. This rounded process is open at the top, and is hollow in dead specimens: but when alive it is full of a contractile substance. In this contractile substance the end of a hair-like curved filament, about the length of the cell, is immersed. This hair-like filament is moved about by the contractile substance attached to it, generally in jerks after intervals of repose, and in its movements sweeps the anterior and posterior surfaces of